

Better Buildings Residential Network Peer Exchange Call Series:

Known Unknowns—Key Energy Efficiency Trends in the New Year

January 9, 2019



Agenda and Ground Rules

- Agenda Review and Ground Rules
- Opening Poll
- Residential Network Overview and Upcoming Call Schedule
- Featured Speakers:
 - Rachel Gold, ACEEE
 - Suzanne Shelton, The Shelton Group
 - Jacob Corvidae, Rocky Mountain Institute
- Open Discussion
- Closing Poll and Announcements

Ground Rules:

- 1. Sales of services and commercial messages are not appropriate during Peer Exchange Calls.
- 2. Calls are a safe place for discussion; please do not attribute information to individuals on the call.

The views expressed by speakers are their own, and do not reflect those of the Dept. of Energy.





Better Buildings Residential Network

Join the Network

Member Benefits:

- Recognition in media and publications
- Speaking opportunities
- Updates on latest trends
- Voluntary member initiatives
- One-on-One brainstorming conversations

Commitment:

Members only need to provide one number: their organization's number of residential energy upgrades per year, or equivalent.

<u>Upcoming Calls (2nd & 4th Thursdays):</u>

- Jan 30: Electrification What Does It Mean for Energy Efficiency?
- Feb 13: Comfort The Biggest Driver of Residential Energy Efficiency
- Feb 27: Heat Pump Water Heaters What You Need to Know Right Now

Peer Exchange Call summaries are posted on the Better Buildings website a few weeks after the call For more information or to join, for no cost, email bbresidentialnetwork@ee.doe.gov, or go to energy.gov/eere/bbrn & click Join







Rachel Gold ACEEE



Known Unknowns: Key Energy Efficiency Trends in the New Year

Utility-Sector Energy Efficiency

Rachel Gold

Senior Manager, Utilities Program

American Council for an Energy-Efficient Economy

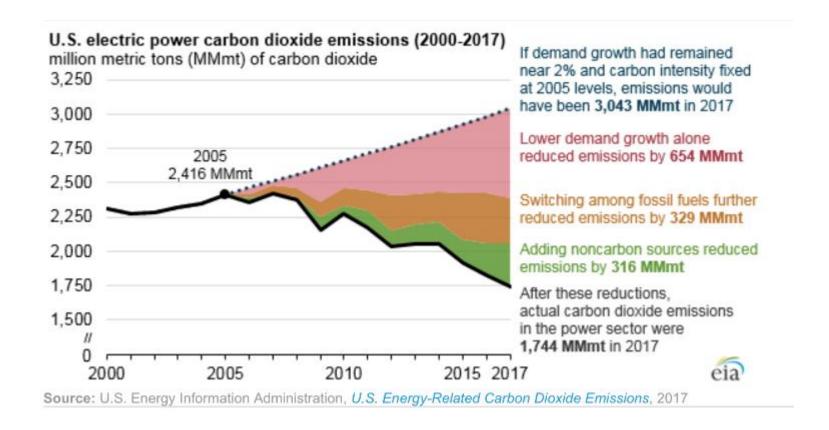
14 November 2019



Two Knowns from the Last Decade



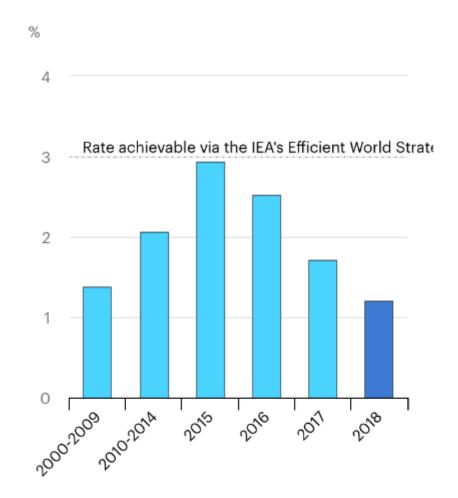
Known #1: Lower demand growth was the #1 driver of CO_2 reductions 2000-2017





#1: But progress on EE has stalled in recent years – in the US, and globally

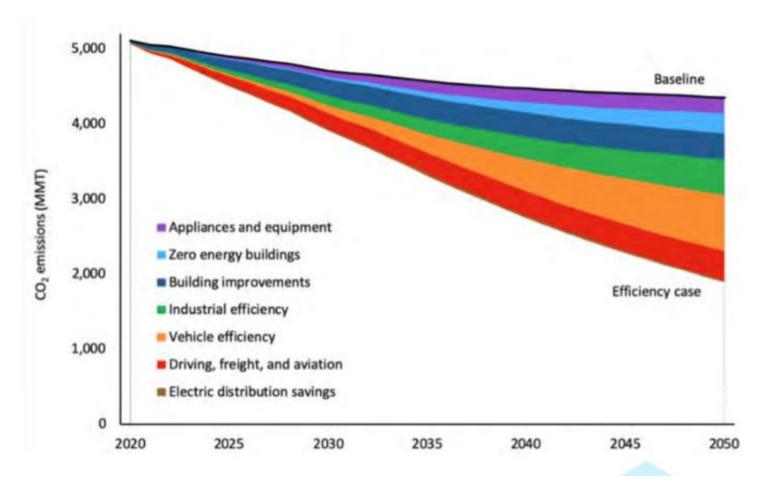
- US energy intensity increased slightly in 2018, while carbon dioxide emissions per dollar of GDP were level with 2017
- After many years of substantial reductions in global energy intensity (energy use per dollar of gross domestic product [GDP]), the rate of improvement is slowing





Source: IEA Energy Efficiency 2019

#1 – nevertheless, we can rapidly scale EE to meet the climate challenge

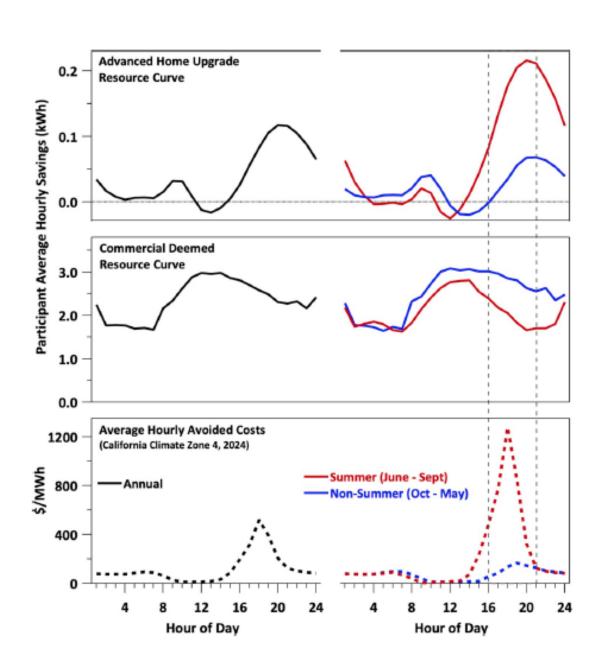




Known #2: We need to align EE with grid and carbon value to maximize its benefits

Source: Golden, Scheer, and Best, 2019, Electricity Journal



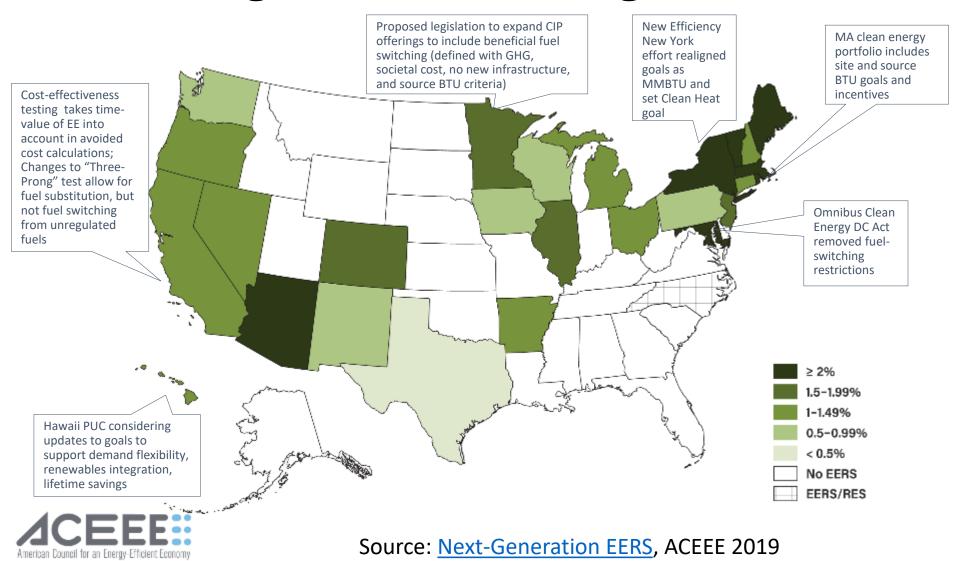


Known Unknowns:

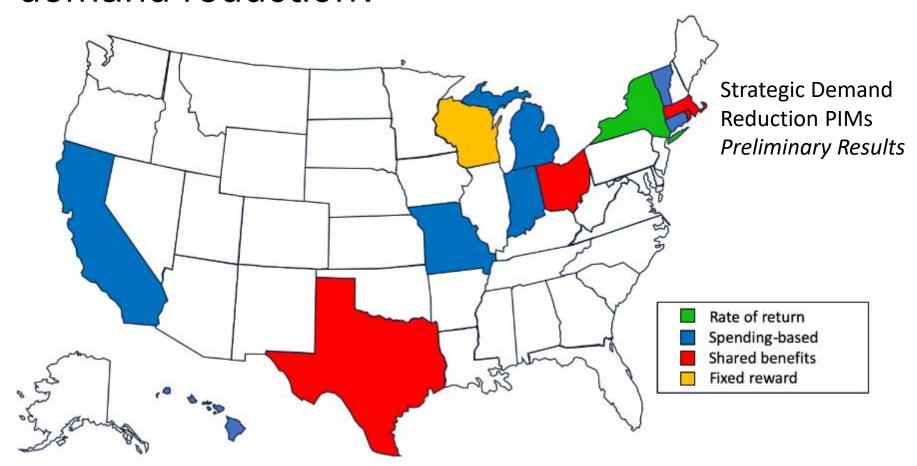
How far will we go to scale energy efficiency and align these investments with grid, climate, and customer value in 2020?



Unknown Known: Can we redefine goals and EERS to align with climate and grid needs?



Unknown Known: Can we evolve utility business models to encourage them to procure strategic demand reduction?





13 examples of SDR PIMs – that require PA to meet SDR target measured in MW reductions, or paid based on performance in MW reductions

Unknown Known: Can we design programs that deliver grid benefits and customer savings?

- Integrated EE/DR Programs – of 44 utility plans reviewed, only 5 offered fully integrated programs
- Grid-interactive efficient buildings pilots emerging from utility programs and private sector
- CA, NY, OR testing payfor-performance programs to align EE with desired GHG or grid benefits

ACEEE's Analysis of Integrated EE/DR Programs

3 programs | 5 programs | 9 programs | 5 programs



RECOGNIZE \rightarrow PROMOTE \rightarrow COORDINATE \rightarrow INTEGRATE



Sources: ACEEE 2019 (EE/DR) and 2019 (GEBs State of the Market)

Unknown Known: Can we plan and procure resources in a way that scales GHG-aligned EE?

Recent actions to value EE as a resource in IRP can help scale investment – requires transparency, shared assumptions

- MI: Consumers Energy's Clean Energy Plan
- MN: Xcel replacing final two coal plants with combination of ~800 MW EE, solar, and existing gas
- OR: Portland General Electric's 2019 IRP selected preferred portfolio including EE, RE, demand flexibility storage

Procurement and costeffectiveness shifting to value multiple benefits and align with grid/GHG value

- 15 states include environmental impacts (nonutility system) in their costeffectiveness tests
- CA, NY, DC, VT, among others, are removing restrictions to beneficial, efficient fuel switching



Sources: RMI 2019, DSESP, ACEEE Topic Brief,

To Recap – In 2020:

- Can we redefine goals and EERS to align with climate and grid needs?
- Can we evolve utility business models to encourage them to procure strategic demand reduction?
- Can we design programs that deliver grid benefits and customer savings?
- Can we plan and procure resources in a way that scales GHG-aligned EE?







Thank you!

ACEEE Publications

Integrated Energy Efficiency and Demand Response Programs https://aceee.org/research-report/u1906

State of the Market: Grid-Interactive Efficient Utility Programs https://aceee.org/white-paper/gebs-103019

Next Generation Energy Efficiency Resource Standards http://www.aceee.org/research-report/u1905

Forthcoming: Strategic Demand Reduction PIMs

Rachel Gold, rgold@aceee.org















Suzanne Shelton
The Shelton Group





"Known Unknowns: Key Energy Efficiency Trends in the New Year"

BBRN Peer Exchange • January 9, 2020 Suzanne Shelton • Shelton Group



We create a market advantage for organizations that create a sustainable, energy-responsible future





The company we keep

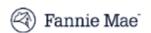














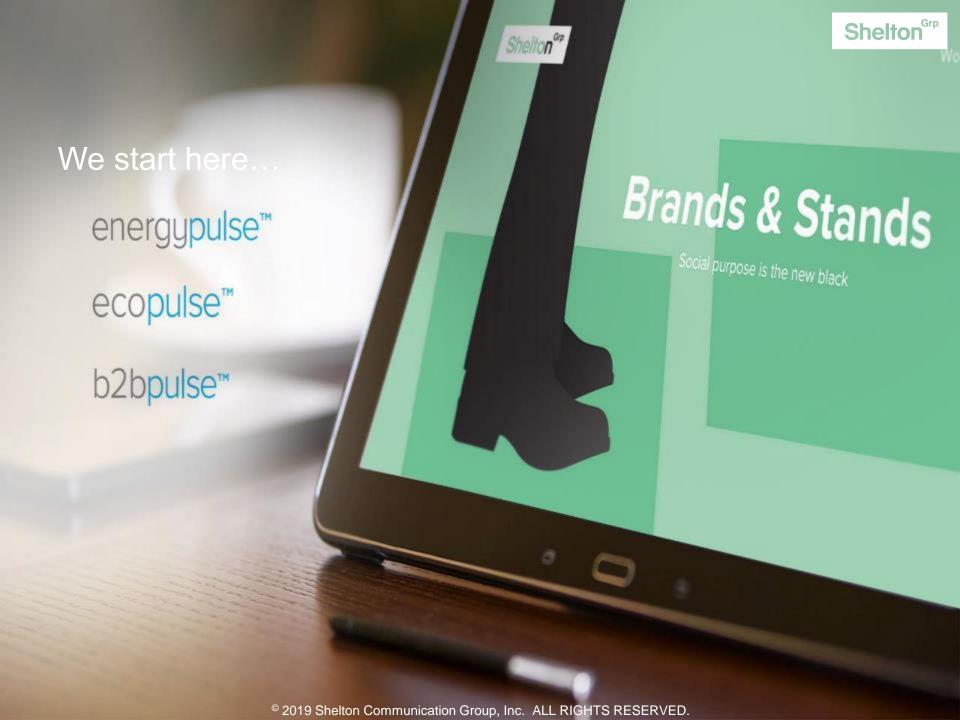
















Energy efficiency has some big perceptual challenges to overcome



What people do when we say "save money" or "save energy"





Most people don't think they need energy efficiency.

65%

of Americans
don't think they
use more
energy than they
did 5 years ago

48%

think their homes are already energy efficient





Most people think energy efficiency doesn't work.

47%
claim to have made 1-3 efficiency improvements to their homes

82%
of those
people say
their utility
bills did not
go down

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n=2.028



Most people don't know what to do.

45%

cannot confidently
and correctly
explain what an
"energy-efficient
home" is to a friend

84%

say they know only
a little or nothing
about what to do to
improve home
energy efficiency





Bottom line:

Screaming "energy efficiency" isn't the way in. Messaging that aligns with what they actually care about is.



What do they care about?

Americans are worried about how the products in their lives impact their health



We're starting to avoid buying products we fear might contaminate our bodies or have adverse effects

"I use [The Honest Company's organic all-purpose balm] in place of Vaseline. It has no petroleum and is totally organic...Products containing petroleum jelly can contaminate the body, interfere with estrogen levels, and may contain carcinogenic substances." -Eco Pulse Online Ethnography Participant, 2018

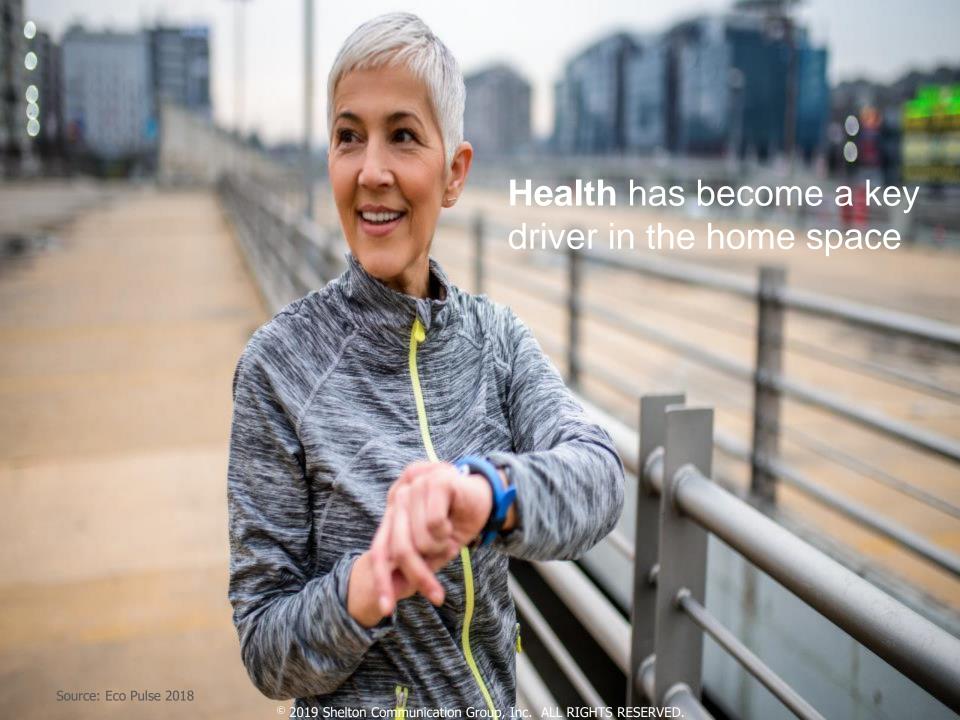




But we aren't just motivated by our own health the health and safety of our families is an important motivator, as well

"When my kids were little, [the Honest Company] had a baby body care line, and it was ridiculously expensive. But I didn't care. I think like most parents I tend to spend a lot more money on the kids' stuff than I would myself because you want it to be all organic and you don't want it to have dyes."

-Eco Pulse Online Ethnography Participant, 2018





72%

believe their house has a moderate to strong impact on their health





Energy efficiency

71%

of consumers believe that an energy-efficient home is a healthy home



Smart technology



of consumers believe that **smart technology** makes a healthy home possible

Source: Energy Pulse 2019

And layering smart tech with EE only makes each more appealing



58%

of consumers are somewhat to very interested in adding smart tech to their home for EE reasons



In short, a smart, energy-efficient home is a healthy home



So where do smart and EE overlap?



EE Technology

Devices, machines or products designed to monitor or reduce energy use





Smart Technology

Devices controlled via the Internet or mobile devices; learned behavior devices



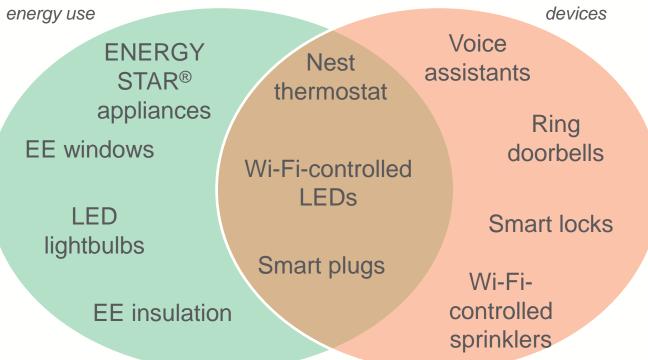


EE Technology

Devices, machines, or products designed to monitor or reduce

Smart Technology

Devices controlled via the Internet or mobile devices; learned behavior devices



Source: Energy Pulse 2019

What are "smart" and "EE" technology doing for consumers now?





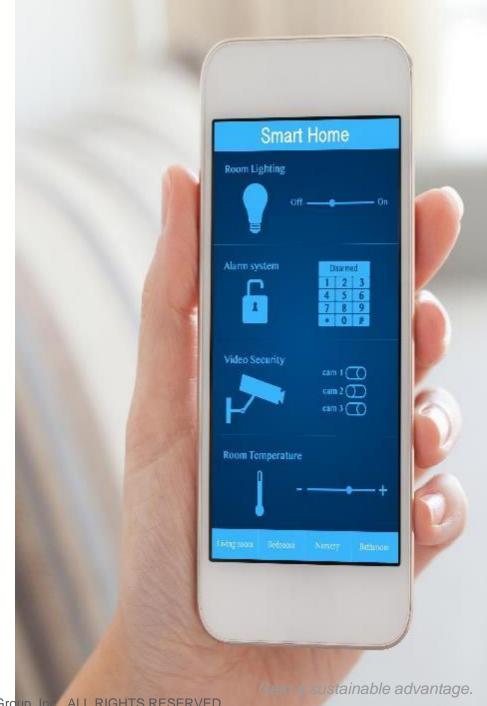
61%

of consumers agree that smart home technology makes their lives easier

*Smart home technology defined as devices controlled via the internet or mobile device and learned-behavior devices

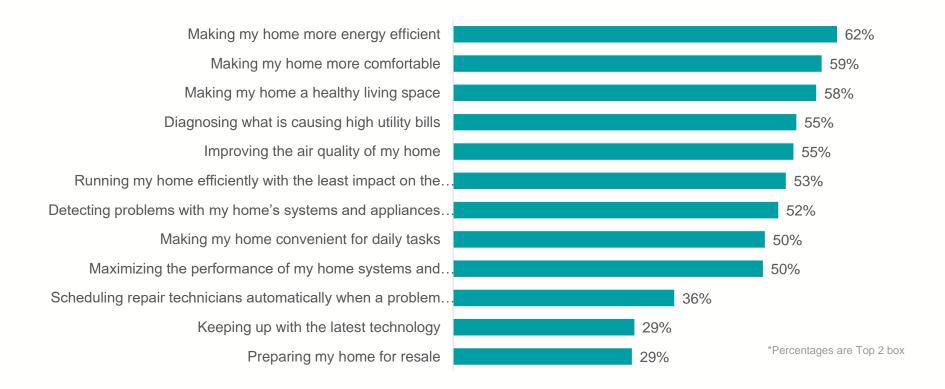
Gain a sustainable advantage.

Smart tech provides tangible benefits like...



...alleviating the hassles of everyday life





n=2.028

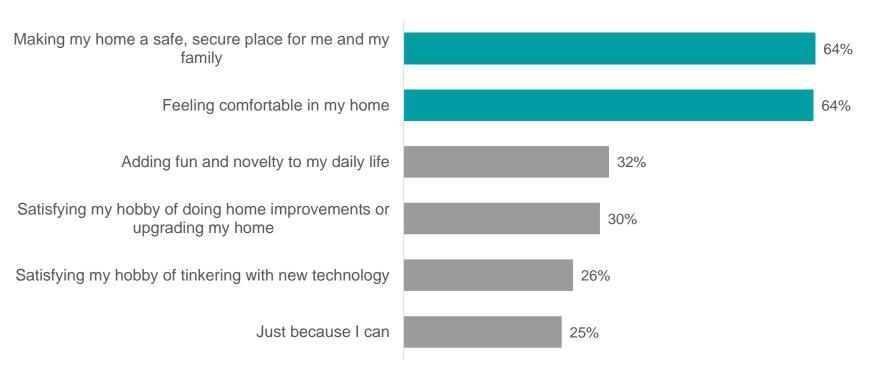




...but it also gives <u>emotional</u> <u>benefits</u> such as



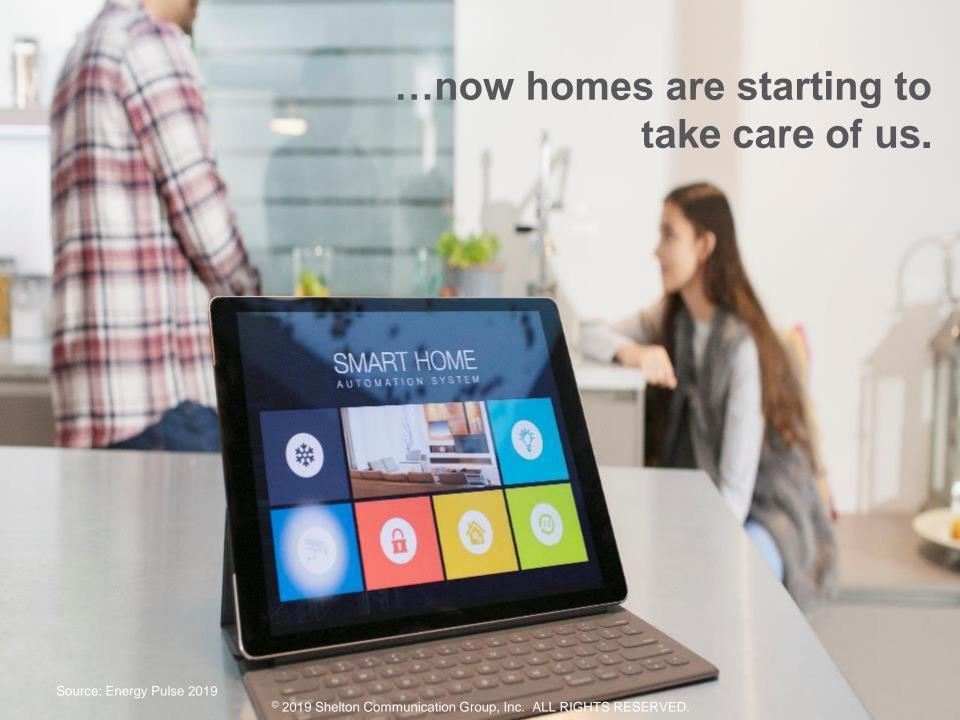
A sense of security, entertainment, peace of mind, etc.



*Percentages are Top 2 box

n=2,028Gain a sustainable advantage.







To Recap

- A smart, energy-efficient home is a healthy home
- Health is how you move consumers to action
- Focus on improving health for them and their family
- **Communicate the benefits:**
 - Health, safety and comfort
 - → Hassle-free
 - Peace of mind
 - Safety and security



Discussion



Thank you!

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Jacob Corvidae
Rocky Mountain Institute





ROCKY MOUNTAIN INSTITUTE

Jacob Corvidae | January 9, 2020 | Better Buildings Residential Network



Transforming global energy use to create a clean, prosperous, and secure low-carbon future.



Xcel 100% Consumers 2040 **NIPSCO** 2028



Cities/States 24 - EV GM All electric

Ford e-Scooter

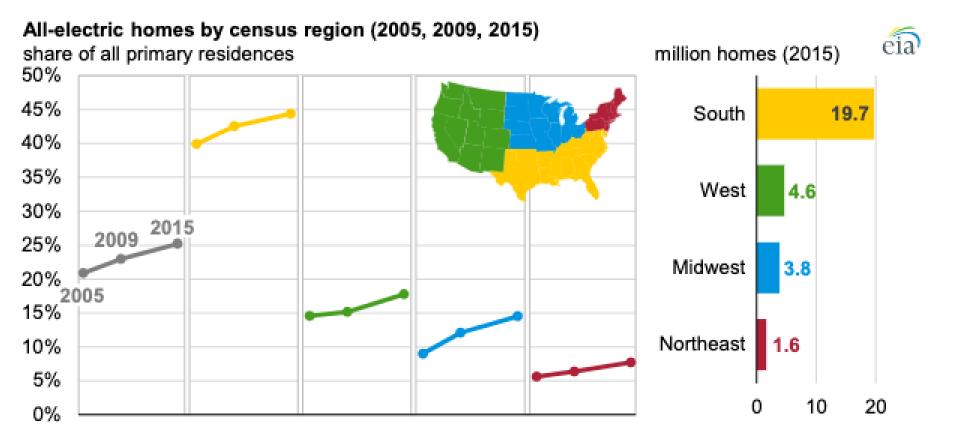






#1:

Electric Homes

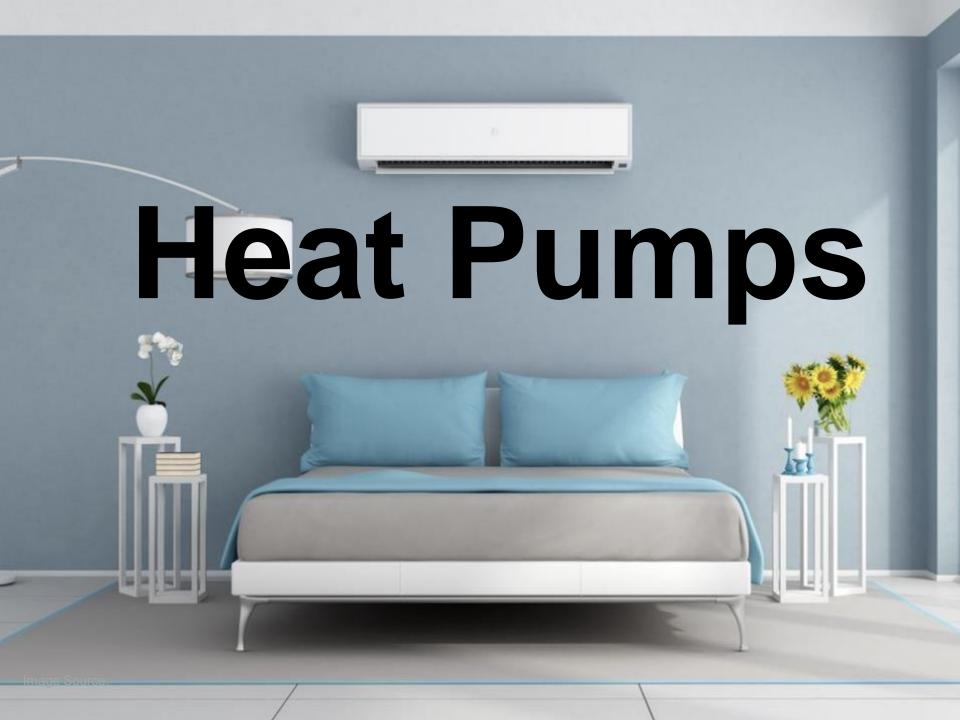


From 1940 through the mid-1950s, coal was the primary source of heating in homes. Forty years later, coal was nearly gone.

Percentage of US households by primary heating fuel

1940-2017 60% Gas Coal 50% 40% Electricity Fuel Oil 30% Wood 20% 10% 0% 2000 2010 1940 1950 1960 1970 1980 1990 2017





#2:

Home Resilience





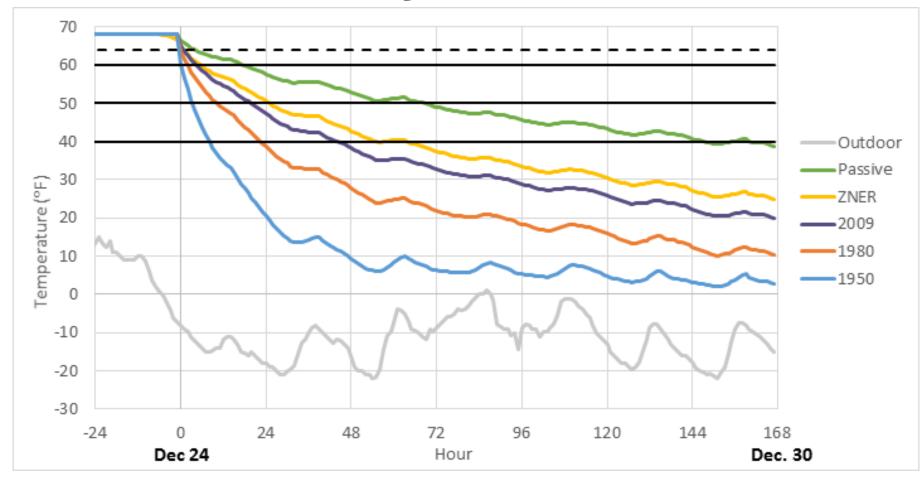




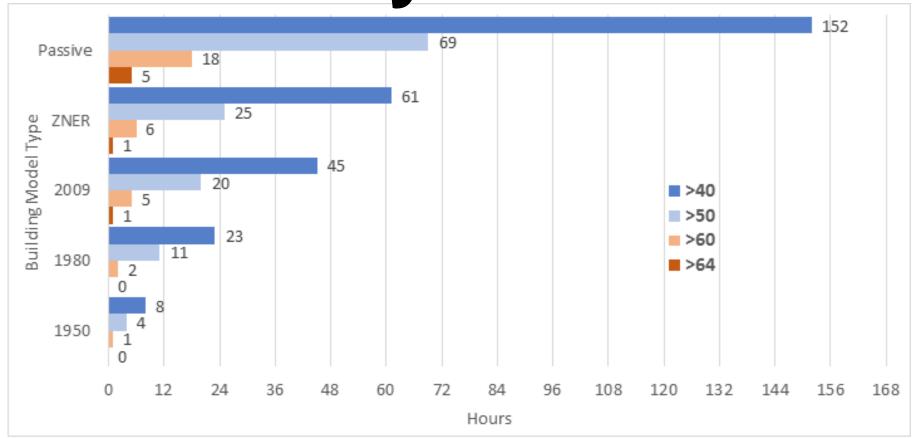


Hours of Safety?

Preliminary — Report coming soon



Preliminary — Report coming soon



#3:

Gas Industry Pushback



#4:

Contractors Ignore

Speed = Freedom

#5:

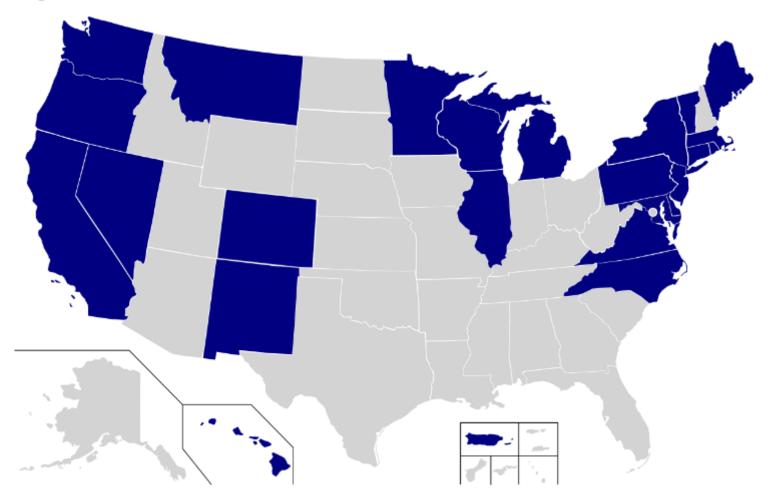
Government Action

Cities



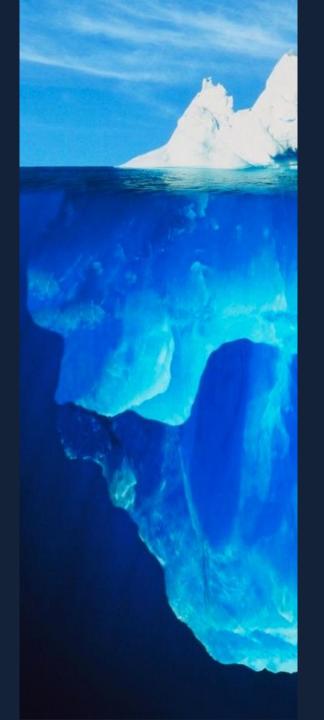
Source: RMI.org

States: members of US Climate Alliance



Summary:

- Electric Homes
- Home Resilience
- Gas Industry Pushback
- Contractors Ignore
- Government Action



Questions?

Jacob Corvidae

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Explore the Residential Program Solution Center

Resources to help improve your program and reach energy efficiency targets:

- Handbooks explain why and how to implement specific stages of a program.
- Quick Answers provide answers and resources for common questions.
- Proven Practices posts include lessons learned, examples, and helpful tips from successful programs.
- Technology Solutions NEW! present resources on advanced technologies, HVAC & Heat Pump Water Heaters, including installation guidance, marketing strategies, & potential savings.



https://rpsc.energy.gov





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